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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,205	07/13/2006	Carlo Liberale	CCVDresser030957 CMRN0006	4778
64833	7590	04/04/2011	EXAMINER	
FLETCHER YODER (CAMERON INTERNATIONAL CORPORATION)			SCHNIEDER, CRAIG M	
P.O. BOX 1212			ART UNIT	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/586,205

**Applicant(s)**

LIBERALE ET AL.

**Examiner**

CRAIG M. SCHNEIDER

**Art Unit**

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2011.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10, 12-16, 18-22 and 24-35 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 10, 12-16, 18-22 and 24-35 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 31 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)  
3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 10, 12-16, 18-22, and 24-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification does not have support for the broader term "inert gas" as claimed in claims 10, 20, and 27. The specification has support for "nitrogen".
3. Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification does not have support for controlling the submersible actuator based on a target position, feedback, and historical data associated with the submersible actuator.
4. Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification does not have support for wherein the control circuit is configured to control, the electric motor based on historical data associated with the actuation of the submarine device.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 10, 12, 14, 16, 18-22, 24-27, and 29-35 are rejected as understood under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. (6,595,487) in view of Dalton, Jr. (4,774,383), Wallace (2005/0016769), and Birtcher et al. (2003/0131885).

Johansen et al. disclose a system comprising a submersible actuator (1) comprising a first housing (area that encloses the motors) having an electric motor (7 and 8) disposed in a first fluid, wherein the first pressurized fluid is a pressurized lubricating liquid (col. 5, lines 54-56); and a second housing (area that encloses the control components) having a control circuit, and wherein the control circuit is coupled to the electric motor, and the control circuit is configured to communicate with the remote control station (col. 5, line 27 to col. 7, line 17). Johansen et al. fail to disclose that the control circuit is disposed in a second pressurized fluid, wherein the second pressurized fluid is an inert gas. Dalton, Jr. discloses that electronic circuitry must be protected from the effects of salt water when the circuitry is used in the ocean and must even be protected against contamination by rain, spray, bilge water and grime, all common factors on a seagoing vessel (col. 1, lines 21-27). Wallace discloses that

subsea application can encounter pressures as high as 25,000 psi and therefore it may be advantageous to pressurize a fluid disposed in a chamber to provide a barrier against ingress of moisture (page 8, Para. 66). Birtcher et al. disclose the use of nitrogen in an electronics box in order to provide an inert atmosphere (Para. 81).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a water tight enclosure for the electronics as taught by Dalton, Jr. and to further provide for a pressurized chamber as taught by Wallace with the electronic chamber of the second chamber of Johansen et al., since sea water is damaging to electronics as taught by Dalton, Jr. and also that underwater pressure could compromise seals therefore a chamber that is pressurized to combat the increased pressure of the depths would further prevent leaks into the chamber as taught by Wallace.

It would have further been obvious to one of ordinary skill in the art at the time the invention was made to utilize an inert atmosphere in the electronics area as taught by Birtcher et al. for the atmosphere of the second housing of Johansen et al. in combination with Dalton, Jr. and Wallace, in order to provide an explosion proof atmosphere in the second housing as taught by Birtcher et al. and to further provide an atmosphere that will not damage the electronic circuitry.

Regarding claim 12, the claim is clearly anticipated by the reference.

Regarding claims 14 and 16, wherein the control circuit (col. 6, lines 19-35) is configured to compare a value of a control signal with an average of a predetermined number of previous control signals and wherein the control circuit is configured to

control the electric motor based on feedback indicative of a current absorbed by the electric motor. The control circuit of Johansen et al. is capable of performing the functional limitations of claim. Further the control circuit as disclosed by Johansen et al. is capable of performing logic operations which would further lend to the capability of the control circuit to performing the intended use (col. 7, line 61 to col. 8, line 4).

Regarding claims 18 and 19, the system comprising a flow control mechanism (2) coupled to the submersible actuator as disclosed by Johansen et al.

Regarding claim 19, wherein the control circuit is configured to control a speed value (moving or not moving of the valve) and a direction for rotation (opening or closing) of the electric motor based on a target shaft position and a current shaft position sensed by a position sensor (23)(col. 6, lines 23-25). The control circuit of Johansen et al. is capable of performing the functional limitations of the claim.

Regarding claim 20, the apparatus as disclosed per the above meets the claimed method steps.

Regarding claim 21, the method comprising receiving an electrical control signal from a remote control station (34)(col. 7, lines 29-60)(Johansen et al.), processing the electrical control signal in the in the control circuit, and triggering the electric motor to actuate a submerged flow control mechanism (2)(col. 7, lines 25-29)(Johansen et al.).

Regarding claim 22, wherein the at least one electric motor comprises first and second electric motors, and the method further comprises independently controlling the first and second electric motors to enable independent actuation of a submerged flow control mechanism (col. 6, lines 9-10)(Johansen et al.).

Regarding claim 24, the method comprising controlling the submersible actuator based on a target position (closed or open), feedback (col. 6, lines 19-28)(Johansen et al.), and historical data (the last position the actuator moved the valve to) associated with the submersible actuator.

Regarding claim 25, the method comprising controlling a speed value (moving or not moving) and a direction for rotation of the at least one electric motor based on a target shaft position and a current shaft position (col. 6, lines 23-25) sensed by a position sensor (23)(Johansen et al.). The control unit would remember the last position of the valve to be controlled and therefore would know which direction to move the valve to either move it to the open position or closed position.

Regarding claim 26, the method comprising controlling the submersible actuator based on a first feedback indicative of an actuator position and second feedback indicative of an absorbed current. As identified above the feedback unit would remember the last position (feedback) of the valve to be controlled. When the control unit determines that a condition has arisen that requires the valve to be closed or opened the control unit would have the motor operate to move the valve to the desired position. This movement of the motor would be indicative of an absorbed current and would be confirmed by the position sensor determining that the valve has achieved the desired position.

Regarding claim 27, the structural limitations as claimed have been addressed in the above rejection of claim 17 and also in the rejection of the claims 10 and 18.

Regarding claim 29, wherein the control circuit is configured to adjust a speed (moving or not moving) of the electric motor based on a current position and a target position of the submarine device (col. 6, line 23-25). The control circuit of Johansen et al. is capable of performing the functional limitations of the claim.

Regarding claim 30, wherein the control circuit is configured to control the electric motor based on historical data (last position of the valve) associated with the actuation of the submarine device. The control circuit of Johansen et al. is capable of performing the functional limitations of the claim.

Regarding claim 31, wherein the control circuit is configured to control the electric motor based on feed back indicative of a current absorbed by the electric motor. The control circuit of Johansen et al. is capable of performing the functional limitations of the claim. The position sensors of Johansen et al. would provide the feedback and the movement of the valve by the motor which is confirmed by the position sensors would be indicative of an absorbed current by the motor.

Regarding claim 32, the system comprising a visual recognition device (36)(col. 7, lines 29-33) and a robot interface (3b) coupled to the submersible actuator (col. 5, lines 27-44), wherein the visual recognition device enables viewing of an actuation position associated with the submarine device, and the robot interface enables a robot to control the submersible actuator.

Regarding claims 33-35, Birtcher et al. discloses utilizing nitrogen as indicated above.



7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. in combination with Dalton, Jr.; Wallace; and Birtcher et al. as applied to claim 12 above, and further in view of Ursel et al. (WO 01/99259)(utilizing US Pat. 6,906,438 for translation).

Johansen et al. in combination with Dalton, Jr.; Wallace; and Birtcher et al. disclose a drive shaft (5) and that each motor is independently able to control the drive shaft. Johansen et al. in combination with Dalton, Jr.; Wallace; and Birtcher et al. fail to disclose that the transmission comprises a worm screw coupled to the transmission shaft and a sprocket coupled to the worm screw and the drive shaft, wherein the electric motors are coupled to the transmission shaft. Ursel et al. disclose a worm screw (26) coupled to a transmission shaft (25) and a sprocket (43) coupled to the worm screw and a drive shaft (col. 1, line 49 to col. 2, line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a worm screw/sprocket drive system as disclosed by Ursel et al. as the gearing between the motors and drive shaft of Johansen et al. in combination with Dalton, Jr.; Wallace; and Birtcher et al., in order to have a gearing system that prevents slipping.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. in combination with Dalton, Jr.; Wallace; and Birtcher et al. as applied to claim 10, and further in view of Schoenberg (5,166,677) and further view of Andre (4,902,030).

Johansen et al. in combination with Dalton, Jr.; Wallace; and Birtcher et al. disclose all the features of the claimed invention except it does not show the pressure balancing device and where it is connected to the unit, Schoenberg discloses a pressure balancing device (40) that is connected to the first housing (13)(col. 6, lines 55-64). Andre discloses utilizing piston and membrane accumulators interchangeably (col. 5, lines 43-47 and line 63-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a pressure control device attached to the first housing as disclosed by Schoenberg with the device of Johansen et al. in combination with Dalton, Jr.; Wallace; and Birtcher et al., in order to be able pressurize the interior of the first housing at various depths.

It would have further been obvious to utilize a membrane accumulator in place of the piston accumulator of Johansen et al. in combination with Dalton, Jr.; Wallace; Birtcher et al.; and Schoenberg; since Andre discloses that the piston and membrane accumulators are interchangeable.

9. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. in combination with Dalton, Jr, Wallace, and Birtcher et al. as applied to claim 27 above, and further in view of Ursel et al. (WO 01/99259)(utilizing US Pat. 6,906,438 for translation).

Johansen et al. in combination with Dalton, Jr., Wallace, and Birtcher et al. disclose a drive shaft (5) and that each motor is independently able to control the drive shaft. Johansen et al. in combination with Dalton, Jr. and Wallace fail to disclose that

the transmission comprises a worm screw coupled to the transmission shaft and a sprocket coupled to the worm screw and the drive shaft, wherein the electric motors are coupled to the transmission shaft. Ursel et al. disclose a worm screw (26) coupled to a transmission shaft (25) and a sprocket (43) coupled to the worm screw and a drive shaft (col. 1, line 49 to col. 2, line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a worm screw/sprocket drive system as disclosed by Ursel et al. as the gearing between the motors and drive shaft of Johansen et al. in combination with Dalton, Jr., Wallace, and Birtcher et al.; in order to have a gearing system that prevents slipping.

#### ***Response to Arguments***

10. Applicant's arguments filed 2/28/11 have been fully considered but they are not persuasive. The applicant is arguing that the examiner has not provided an initial burden of proof that the term "inert gas" is not supported in the originally filed specification. The applicant further indicates citations from the originally filed specification that nitrogen is known as an inert gas. While the examiner does not disagree with the applicant that nitrogen is an inert gas, it is the examiner's position that nowhere in the originally filed specification does the applicant describe the pressurized fluid in the second housing as an "inert gas" other than specifically, nitrogen. This is further supported by applicant's remarks dated 2/28/11 on page 8 to 9. The term "inert gas" also would encompass neon and argon to name two. The originally filed specification makes no mention of these gases specifically or generically per the term

"inert gas". Therefore the use of the term "inert gas", which would encompass these two gases, would constitute new matter; since the applicant has not disclosed either a listing of all the inert gases or used the term "inert gas" in the originally filed specification. It is well established that a disclosure of a species does not provide adequate support for claims directed to a broader genus.

11. The applicant is arguing that the 112/1<sup>st</sup> rejection of claims 24 and 30 should be withdrawn since the originally filed application supports controlling actuation based on a target position, feedback, and historical data. It appears as stated above in regards to the use of the term "inert gas" that the applicant's position is that since a specific example was disclosed that would be an instance of controlling actuation based on target position, feedback, and historical data supports the broader claim language. The examiner disagrees. The use of the language "controlling actuation based on target position, feedback, and historical data" is broad and can be done per different means than what is specifically disclosed by the applicant. Therefore since the applicant has not generically disclosed the broad use of controlling the actuation based on target position, feedback, or historical data but on specific ways to control the actuation based on target position, feedback, and historical data the utilization of the broad terms is considered new matter because the terms encompass other meanings than the ones that applicant has disclosed. It is well established that a disclosure of a species does not provide adequate support for claims directed to a broader genus.

12. In response to applicant's argument that Birtcher et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or,

if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the concern for the inert atmosphere in the second housing is directed to providing an atmosphere that would not lead to premature degradation of the electronics per the atmosphere the electronics are disposed in. Birtcher et al. addresses this issue and therefore is pertinent to the problem of providing an atmosphere that would prevent corrosion of the electronics.

13. In response to applicant's argument that control circuit as claimed in claims 14, 16, and 31 can not be met by the control circuit as indicated in the rejection as disclosed by Johansen, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. It is further examiner's position that the claim language is intended use and has been treated as such in the rejection above. The examiner further asserts that the control circuit as disclosed by Johansen is capable of performing the required function. The applicant has not provided the examiner with any evidence that the control circuit as disclosed can not meet the intended use limitations of claims 14, 16, and 31.

### ***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG M. SCHNEIDER whose telephone number is (571)272-3607. The examiner can normally be reached on M-F 8:00 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hepperle can be reached on (571) 272-4913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Craig M Schneider/  
Primary Examiner, Art Unit 3753  
March 28, 2011